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Structure of Preferred embodiments of the invention

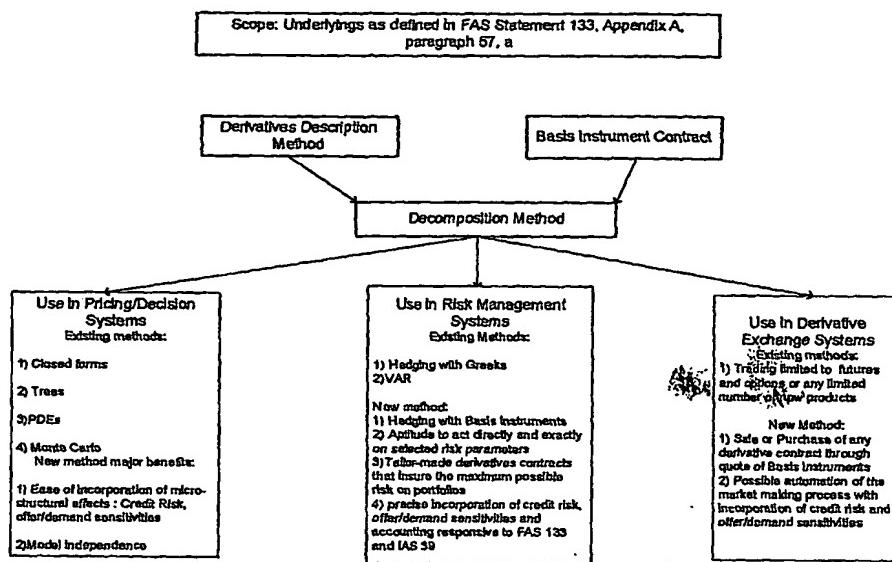


Figure 1: Structure of preferred embodiments for the invention

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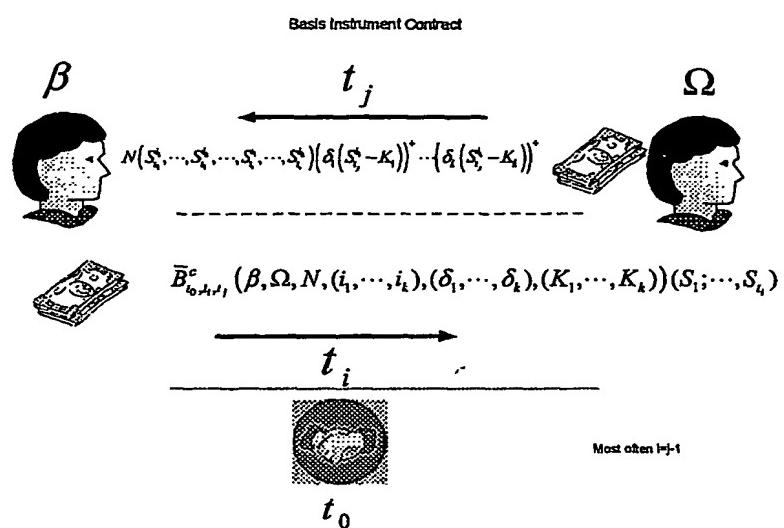


Figure 2: Definition of Basis Instruments Contracts

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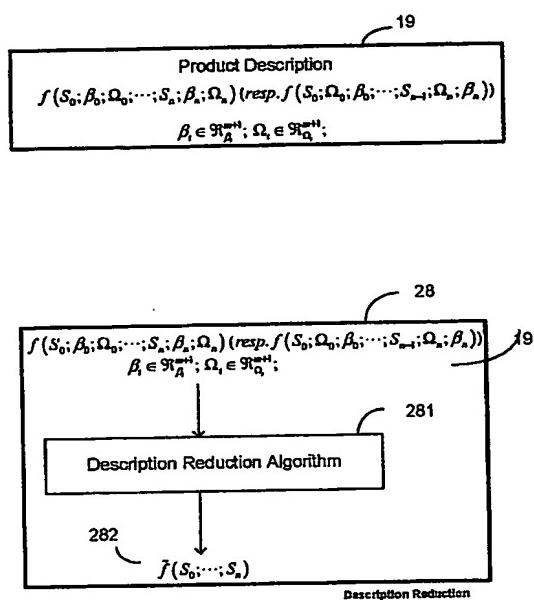


Figure 3: Derivatives Reduction

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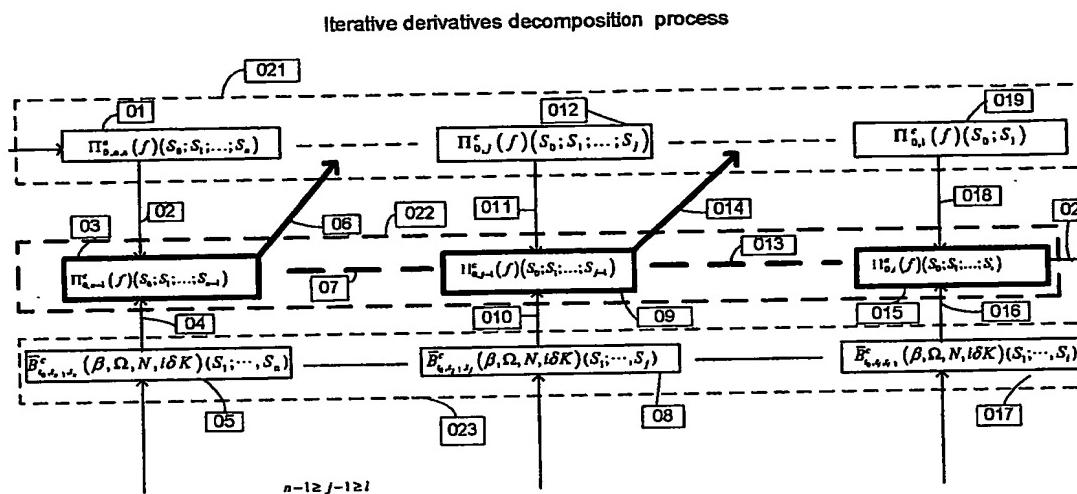


Figure 4: Iterative Derivatives Decomposition Process

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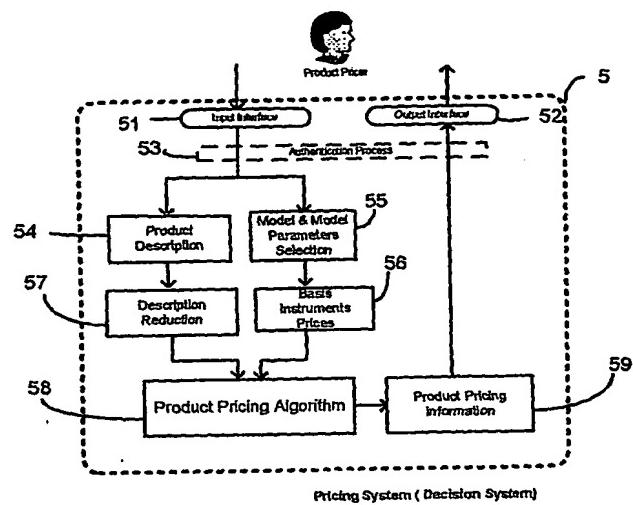


Figure 5: Pricing system

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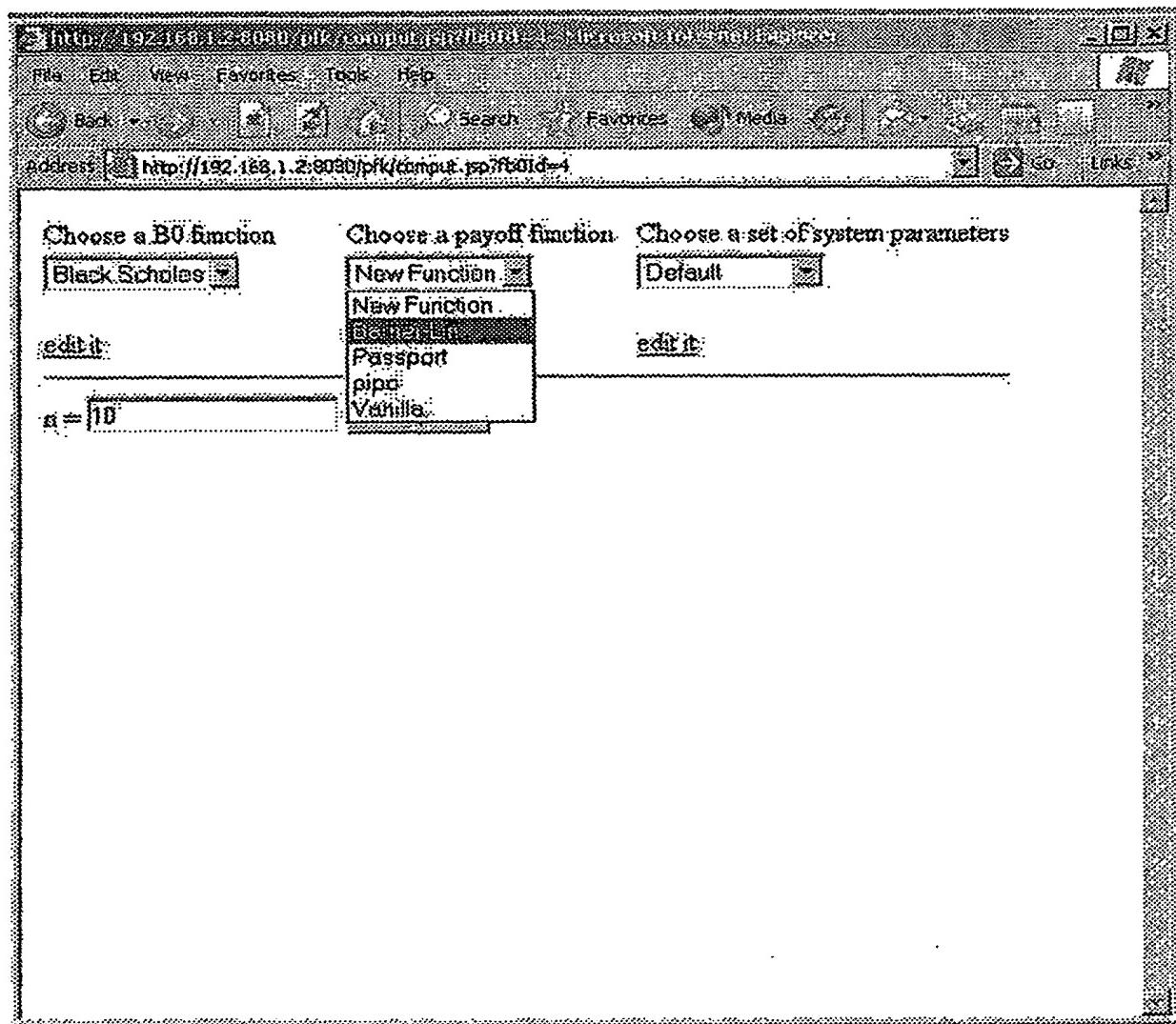


Figure 6: Web Interface : Main screen

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The screenshot shows a web browser window with a formula editor interface. The address bar displays the URL: [F_{B0}\(t, \delta, k\) = B00^*. Below this input field is a mathematical expression: \$d1\(t, k\) = d1\(t, k\) \cdot \text{sigma} \cdot \sqrt{\delta_{\(t\)}}\$. Further down, another expression is shown: \$d2\(t, k\) = \frac{\ln\left\(\frac{F\(t\)}{k}\right\)}{\text{sigma} \cdot \sqrt{\delta_{\(t\)}}} + \text{sigma} \cdot \frac{\sqrt{\delta_{\(t\)}}}{2}\$. At the top of the editor, there are buttons for "Insert" \(with icons for formula and variable\), "Remove", and "Save".](http://192.168.1.21:8020/plk/f10.jsp?position=0&type=f10_formula&action>Edit. The main area is titled)

Figure 7: Web Interface : Basis Instrument Input

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http://192.168.1.2:8080/pfk/fn.sv?pos=1&type=form&submit=Edit

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media

Address: http://192.168.1.2:8080/pfk/fn.sv?pos=1&type=form&submit=Edit

Go Links

Variables:

Number of Variables: 2

Variable: 0 Name: S Formula: S() Low bound: LS() High bound: HS()

Variable: 1 Name: p Formula: p $\{j = p(j-1) + \text{Beta} * (S(j) - S(j-1))\}$ Low bound: Lp(j-1) + Min(LS(j), HS(j-1), -HS(j)+LS(j-1)) High bound: Hp(j-1) + Max(HS(j), LS(j-1), LS(j)+HS(j-1)) Initial Value: 0.0

Figure 8: Web Interface : Payoff Function Input

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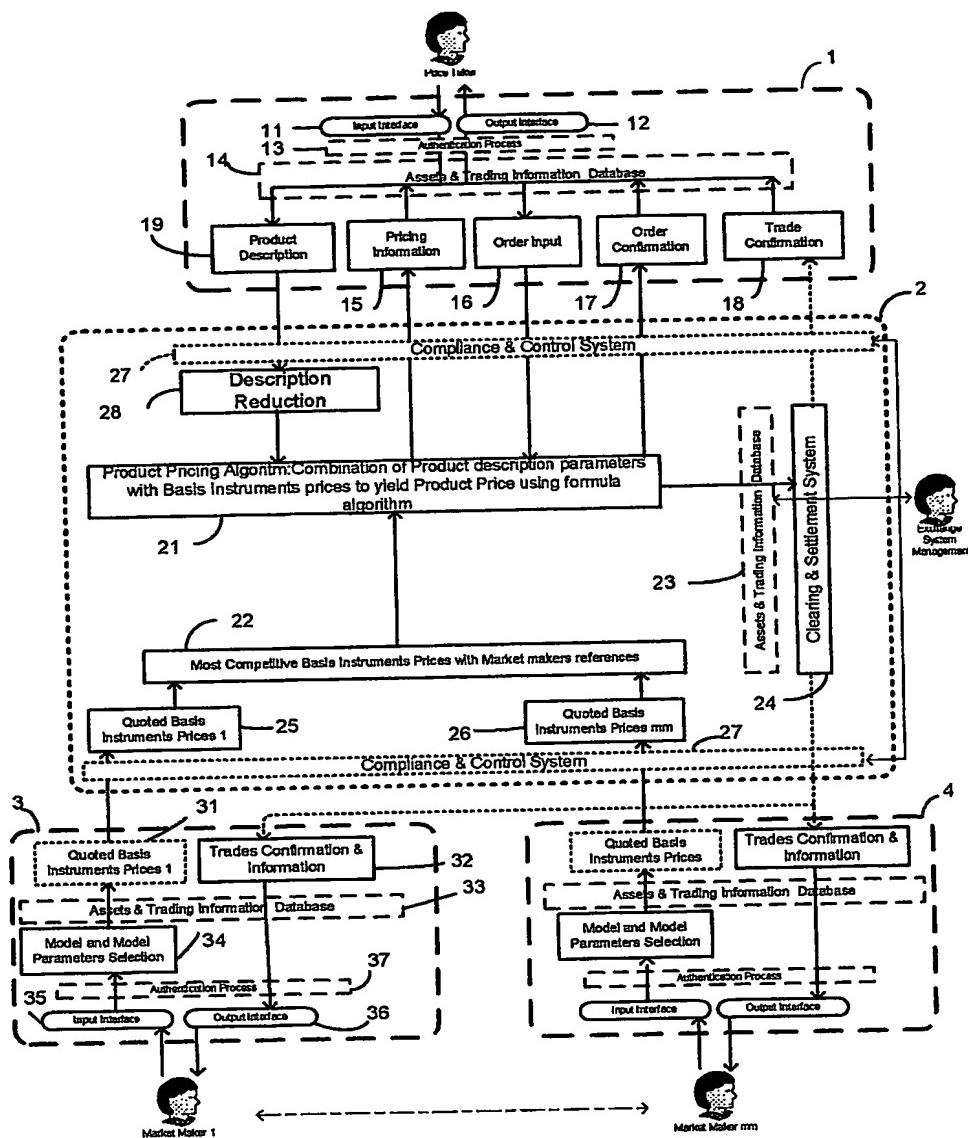


Figure 9: Exchange trading system

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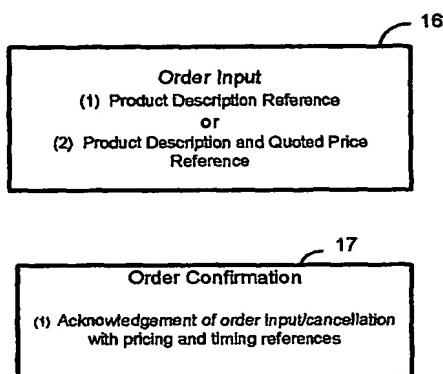


Figure 10: Exchange Order Input & Confirmation

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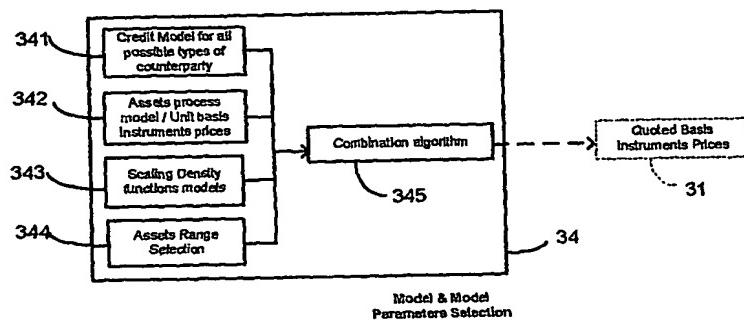


Figure 11: Model & Parameter selection

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Basis instruments price selection process in an exchange framework:
Illustration of Basis instruments syndication to market makers to most efficiently reduce derivatives prices quoted to price takers

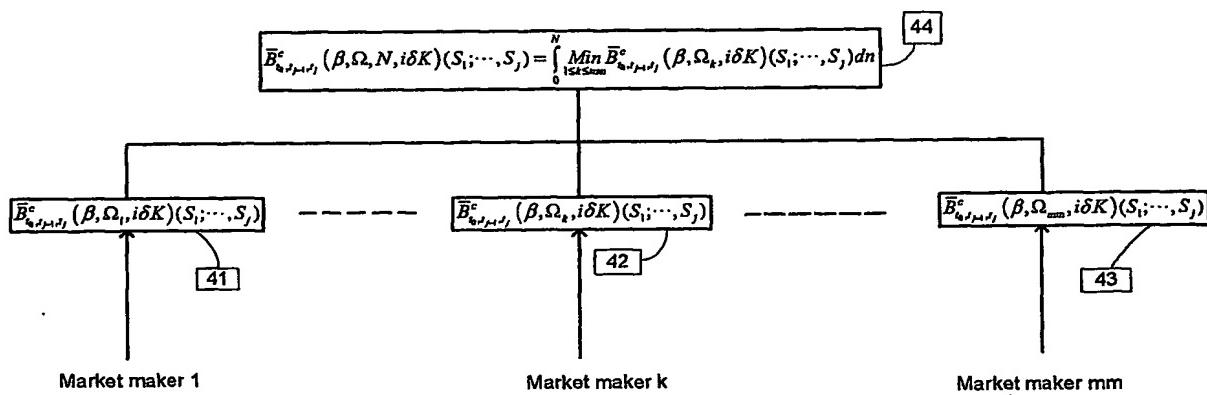


Figure 12: Basis instruments price selection process

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Derivatives Pricing Approximation Process by selecting block units and recombining while keeping a cap on approximation error

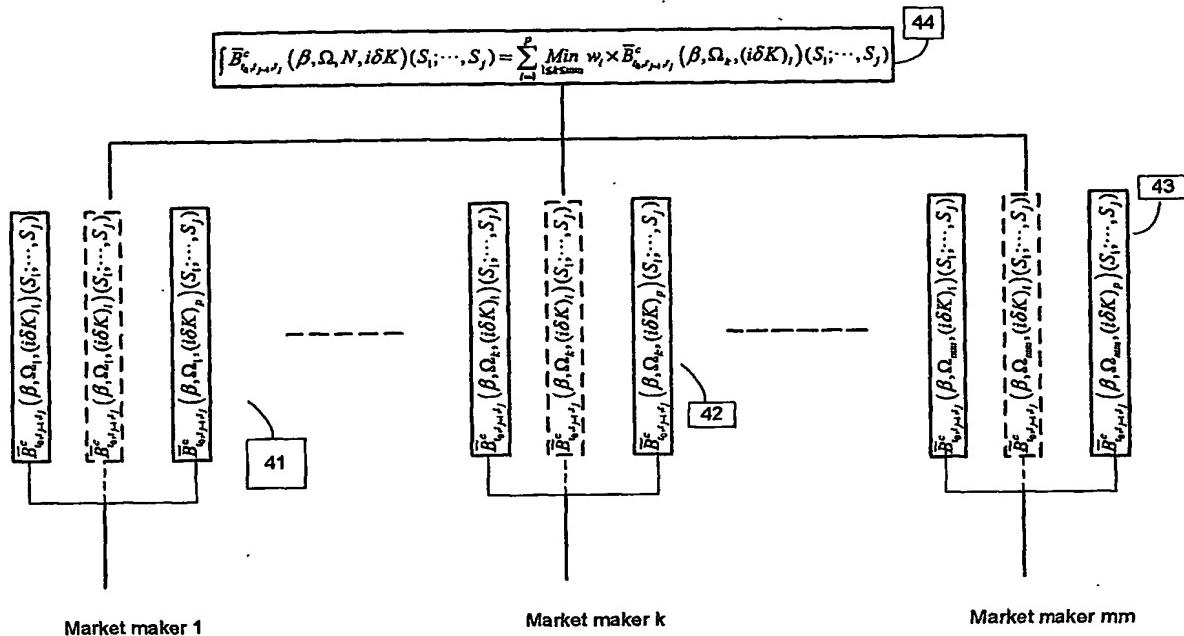


Figure 13: Derivatives Pricing Approximation Process by selecting block units

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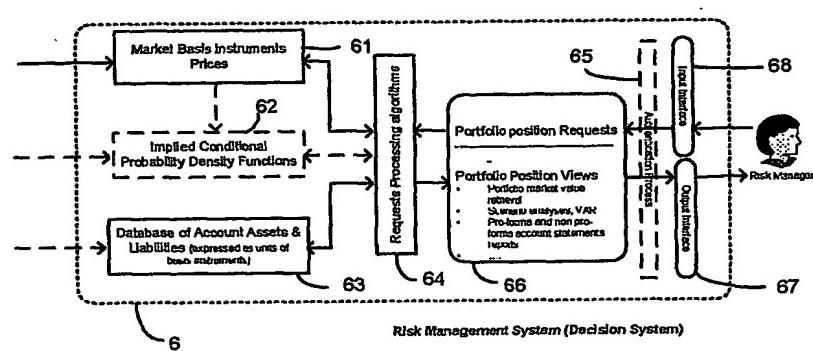


Figure 14: Risk Management system

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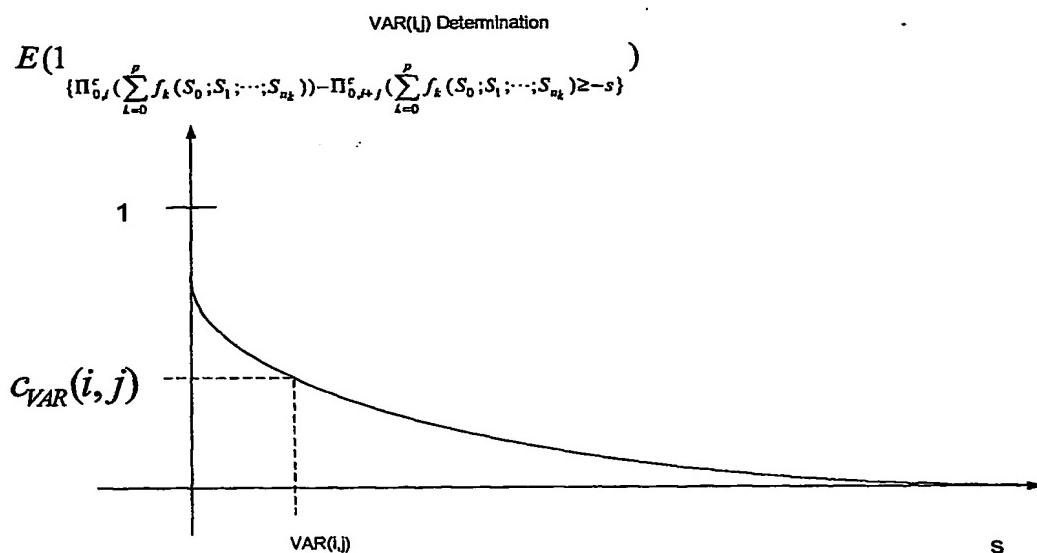


Figure 15: Risk Management, VAR Method

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VAR Risk Management Method

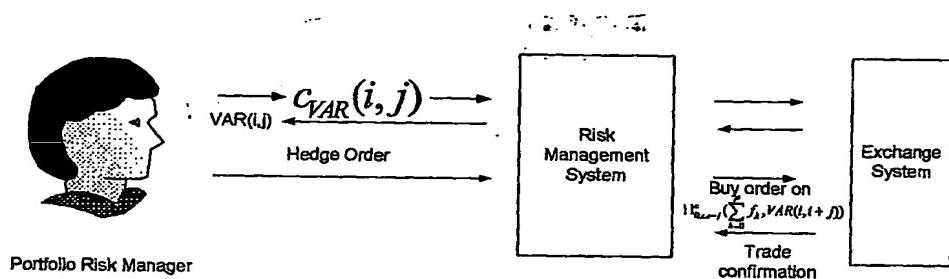


Figure 16: Risk Management, VAR Method

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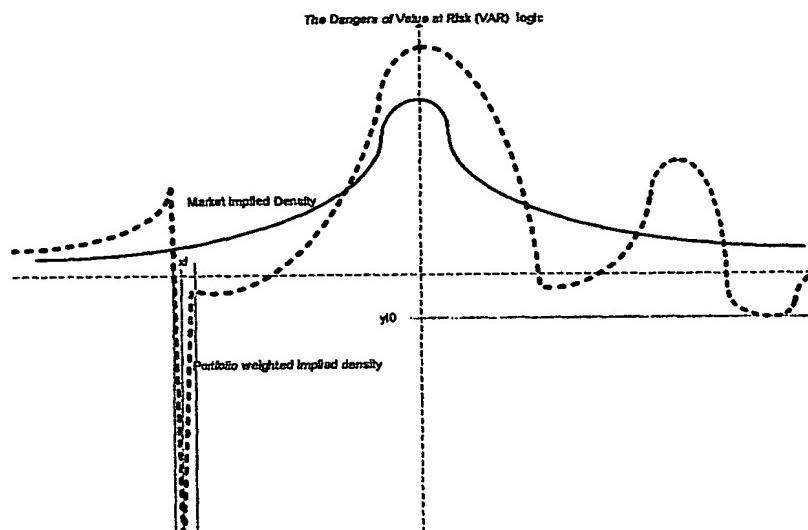


Figure 17: Risk Management, VAR danger.

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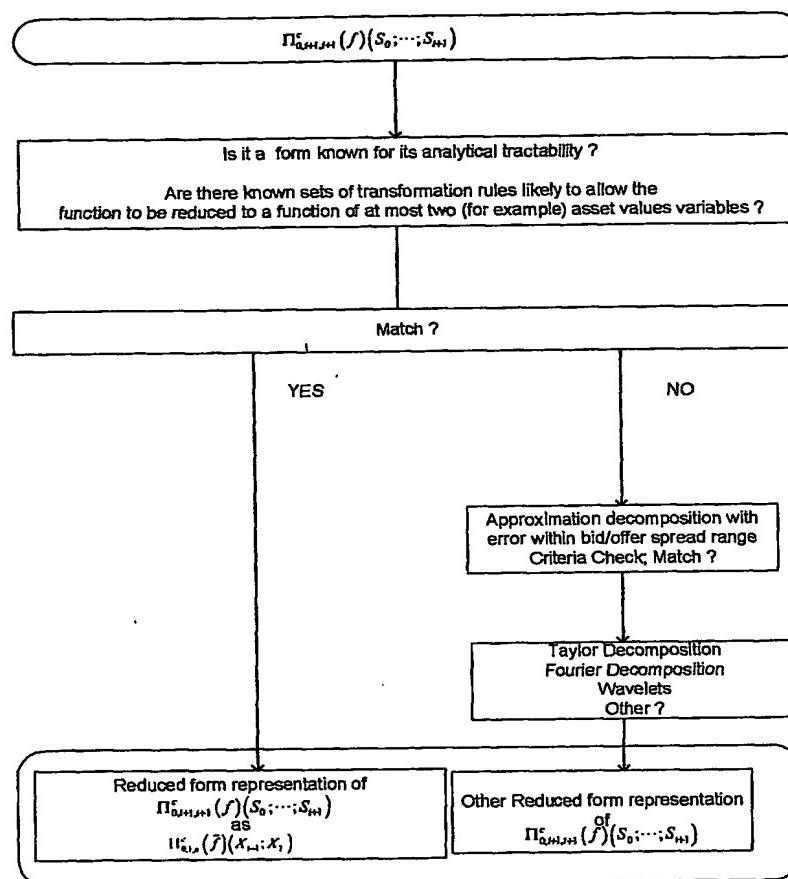


Figure 18: Compression to reduced form of Derivatives

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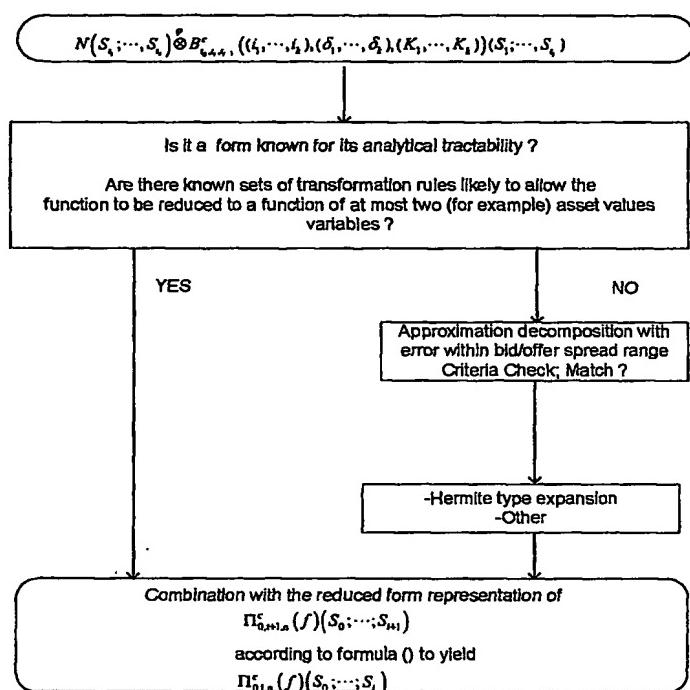


Figure 19: Compression to reduced form of Basis Instruments